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        Chory, Joanne
        Cerdan, Pablo D.

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      Gly Phe Met Gly
              835
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<210> 4
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 4
cagaggaacc ctgtttctac tgttgagct                                    29

<210> 5
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 5
cgttacttgg ttgagcttgg cctgaagga                                    29

<210> 6
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 6
tcccggacat gaagccattt atatgta                                      27

<210> 7
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> FT PCR Primer

<400> 7
gctacaactg gaacaacctt tggcaat                                      27

<210> 8
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> CO PCR Primer
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<400> 8
tataggcatc atcaccgttc gttactc                                        27

<210> 9
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 9
aaactctttc agctccatga ccactact                                      28

<210> 10
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer for UBQ10

<400> 10
ccatggatga aatgtatgcg ttatggtta                                     29

<210> 11
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 11
ggtgtcagaa ctctccacct caagagta                                      28

<210> 12
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 12
tcaattctct ctaccgtgat caagatgca                                     29

<210> 13
<211> 724
<212> PRT
<213> Sacharum officinarum

<220>
<221> VARIANT
<222> 5017
<223> Xaa = Any Amino Acid


<221> VARIANT
<222> 666
<223> Xaa = Any Amino Acid

<400> 13
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Met Ala Ala Ala Asp Arg Gln Leu Val Val Ala Val Glu Gly Thr Ala
1               5                   10                  15
Ala Leu Gly Pro Tyr Trp Ser Thr Ile Val Ala Glu Tyr Val Glu Lys
            20                  25                  30
Ile Val Arg Ser Phe Cys Ala Ser Glu Leu Pro Gly Gln Lys Leu Ala
        35                  40                  45
Gly Ala Pro Pro Glu Leu Ala Leu Val Val Phe His Thr His Gly Pro
    50                  55                  60
Tyr Ser Ala Phe Asp Val Gln Arg Ser Gly Trp Thr Lys Asp Thr Asp
65                  70                  75                  80
Ala Phe Leu Ser Trp Leu Ser Gly Ile Ser Phe Ser Gly Gly Gly Phe
                85                  90                  95
Ser Glu Ala Ser Thr Cys Glu Gly Leu Ala Glu Ala Leu Lys Ile Leu
            100                 105                 110
Gln Gly Ser Pro Asn Thr Thr Gln Ser His Gln Asn His Glu Ala Gln
        115                 120                 125
Lys His Cys Ile Leu Val Ala Ala Ser Asn Pro Tyr Pro Leu Pro Thr
    130                 135                 140
Pro Val Tyr Cys Leu Pro Thr Gln Ser Thr Asp His Lys Glu Asn Ile
145                 150                 155                 160
Glu Thr Ala Lys Glu Pro Ser Ile Ala Asp Ala Glu Thr Val Ala Lys
                165                 170                 175
Ser Phe Ala Gln Cys Ser Val Ser Leu Ser Val Ile Ser Pro Lys Gln
            180                 185                 190
Leu Pro Thr Leu Lys Ala Ile Tyr Asn Ala Gly Lys Arg Asn Pro Arg
        195                 200                 205
Ala Ala Asp Pro Ser Val Asp His Ala Lys Asn Pro His Phe Leu Val
    210                 215                 220
Leu Leu Ser Glu Asn Phe Met Glu Ala Arg Thr Ala Leu Ser Arg Pro
225                 230                 235                 240
Leu His Gly Asn Leu Ala Pro Asn Gln Thr Ile Thr Lys Met Asp Thr
                245                 250                 255
Ala Pro Ala Val Thr Met Pro Gly Pro Thr Ser Asn Ala Asn Pro Ser
            260                 265                 270
Gly Arg Gln Pro Val Val Gly Gly Ile Ser Thr Ala Thr Val Lys Val
        275                 280                 285
Glu Pro Ala Thr Met Pro Pro Ile Val Ser Ala Pro Ala Phe Ser His
    290                 295                 300
Val Thr Pro Ile Ser Asn Val Ala Ser Gln Gly Ile Ser Ala Leu Gln
305                 310                 315                 320
Thr Ser Ser Pro Ser Leu Ile Ser Gln Glu Ala Asn Met Ala Asn Asp
                325                 330                 335
Asn Val Gln Glu His Lys Pro Ile Ile Asn Pro Val Gln Gln Pro Val
            340                 345                 350
Arg Pro Gly Gly His Gly Ser Leu Leu Asn Asn Leu Ser Gln Val Arg
        355                 360                 365
Leu Met Asn Ser Thr Ser Leu Gly Gly Gly Ala Thr Ser Met Gly Leu
    370                 375                 380
Pro Asn Ile Gly Ala Thr Pro Ile Gln Val His Met Ser Asn Met Ile
385                 390                 395                 400
Ser Ser Gly Met Thr Ser Thr Pro Ser Val Ile Ser Ser Met Ser Gly
                405                 410                 415
Pro Gly His Pro Ile Gly Thr Gln Gln Met Ile Gln Ser Thr Ala Leu
            420                 425                 430
Gly Ser Phe Gly Ser Asn Thr Ser Thr Val Ser Gly Asn Ser Asn Val
        435                 440                 445
Ala Val Ser Ser Ser Leu Thr Asn Asn Gln Ser Ser Met Gly Met Gly
    450                 455                 460
Gln Ser Val Gln Pro Val Ala Gln Gly Gly Leu Val Ala Gly Ser Gln
465                 470                 475                 480
Leu Gly Gln Gly Gly Ile Gly Ala Asn Gln Asn Val Met Ser Ser Leu
                485                 490                 495
Gly Ser Thr Ala Ile Ser Ser Ala Pro Ala Met Met Pro Thr Pro Gly
```

8

```
                   500                         505                         510
Met Val Pro Gln Thr Gly Val Asn Ser Leu Gly Val Asn Asn Asn Pro
            515                         520                         525
Ala Met Asn Met Pro Ile Pro Gln His Ala Asn Ala Gln Gln Pro Ala
        530                         535                         540
Pro Lys Tyr Val Lys Ile Trp Glu Gly Thr Leu Ser Gly Gln Arg Gln
545                         550                         555                         560
Gly Gln Pro Val Phe Ile Cys Lys Leu Glu Gly Tyr Arg Ser Gly Thr
                    565                         570                         575
Ala Ser Glu Thr Leu Ala Ala Asp Trp Pro Glu Thr Met Gln Ile Val
                580                         585                         590
Arg Leu Ile Ala Gln Glu His Met Asn Asn Lys Gln Tyr Val Gly Lys
            595                         600                         605
Ala Asp Phe Leu Val Phe Arg Thr Leu Asn Gln His Gly Phe Leu Gly
        610                         615                         620
Gln Leu Gln Glu Lys Lys Leu Cys Ala Val Ile Gln Leu Pro Ser Gln
625                         630                         635                         640
Thr Leu Leu Leu Ser Met Ser Asp Lys Ala Arg Arg Leu Ile Gly Met
                    645                         650                         655
Leu Phe Pro Ala Asp Met Val Val Ser Xaa Pro Gln Val Pro Thr Gln
                660                         665                         670
Gln Thr Gln Leu Gln Gln Gln Leu Gln Gln Gln Gln Leu Pro Lys Gln
            675                         680                         685
Gln Gln Leu Gln Gln Glu Leu Gln Gln Gln Gln His Met His Met Gln
        690                         695                         700
His Gln Ala Ser Asn Ser Glu Ala Glu Met His Phe Ser Lys Ala Glu
705                         710                         715                         720
Ala Gln Met Pro
```

<210> 14
<211> 582
<212> PRT
<213> Sorghum bicolor

<400> 14

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Arg Ser Phe Cys Ala Ser Glu Leu Pro Gly Gln Lys Leu Ala Gly Pro
            20                  25                  30
Pro Pro Glu Leu Ala Leu Val Val Phe His Thr His Gly Pro Tyr Ser
        35                  40                  45
Ala Phe Asp Val Gln Arg Ser Gly Trp Thr Lys Asp Thr Asp Ala Phe
    50                  55                  60
Leu Ser Trp Leu Ser Gly Ile Ser Phe Ser Gly Gly Phe Ser Glu
65                  70                  75                  80
Ala Ser Thr Cys Glu Gly Leu Ala Glu Ala Leu Lys Ile Leu Gln Gly
                85                  90                  95
Ser Pro Asn Ala Thr Gln Ser His Gln Asn His Glu Ala Gln Lys His
            100                 105                 110
Cys Ile Leu Val Ala Ala Ser Asn Pro Tyr Pro Leu Pro Thr Pro Val
        115                 120                 125
Tyr Cys Leu Pro Thr Gln Ser Thr Asp His Lys Glu Asn Ile Glu Thr
    130                 135                 140
Ser Lys Glu Pro Ser Ile Ala Asp Ala Glu Thr Val Ala Lys Ser Phe
145                 150                 155                 160
Ala Gln Cys Ser Val Ser Leu Ser Val Ile Ser Pro Lys Gln Leu Pro
                165                 170                 175
Thr Leu Lys Ala Ile Tyr His Glu Ala Val Val Ala Val Glu Ala Phe
            180                 185                 190
Arg Ala Tyr Lys Glu Lys Val Ala Asn Leu Thr Gly Val Thr Arg Lys
        195                 200                 205
```

```
Phe Met Gly Asn Leu Val Lys Ala Phe Lys Thr Asn Leu Pro Glu Val
    210                 215                 220
Val Val Thr Pro Ala Ala Phe Asp Phe Asp His Ile Val Asn Gly Pro
225                 230                 235                 240
Thr Met Gly Ser Gln Thr Ala Gly Val Gly Gly Ile Ile Ser Thr Ala
            245                 250                 255
Thr Val Thr Leu Glu Gln Pro Ala Met Glu Pro Met Val Ser Gly Ser
            260                 265                 270
Ala Gly Phe Trp His Ser Ala Leu Gln Gln Pro Ser Ser Ser Ser Leu
        275                 280                 285
Ile Ser Gln Glu Ala Asn Ile Ala Asn Asp Ser Val Gln Glu His Arg
    290                 295                 300
Pro Ile Arg Ser Pro Val Gln His Pro Val Arg Pro Gly Arg His Gly
305                 310                 315                 320
Gly Leu Leu Ser Asn Pro Ser Gln Phe Gln Pro Ile His Ser Thr Phe
            325                 330                 335
Phe Gly Glu Ala Thr Thr Ser Met Gly Pro Pro Asn Ile Gly Ala Ile
            340                 345                 350
Thr Pro Leu Gln Phe Asn Met Ser Asn Met Ile Ser Ser Gly Ala Thr
        355                 360                 365
Ser Thr Pro Leu Val Thr Phe Ser Met Ser Ala Pro Gly Gln Pro Ile
    370                 375                 380
Gly Asn Gln Asp Met Val Gln Ser Thr Ala Leu Gly Ser Phe Gly Ser
385                 390                 395                 400
Asn Thr Ser Thr Ala Trp Asp Asn Ser Asp Ile Ala Glu Ser Ser Ser
            405                 410                 415
Gln Pro Asn Ser Met Ala Met Asn Arg Gln Ala Gly Ile Asn Pro Leu
            420                 425                 430
Ser Ser Ala Met Asn Ala Pro Ile Gly Met His His Asn Ala Gln Gln
        435                 440                 445
Pro Pro Pro Lys Tyr Val Lys Ile Trp Glu Gly Thr Leu Ser Gly Gln
    450                 455                 460
Arg Gln Gly Arg Pro Val Phe Ile Ser Arg Leu Glu Gly Trp Ser Gly
465                 470                 475                 480
Ile Val Ser Lys Thr Val Ala Ala Asp Trp Pro Glu Thr Met Gln Ile
            485                 490                 495
Val Arg Leu Ile Ala Gln Glu His Met Asn Asn Lys Gln Tyr Val Trp
            500                 505                 510
Lys Gly Arg Leu Ser Asn Ile Ser Asp Phe Lys Ser Ala Trp Phe Leu
        515                 520                 525
Gly Gln Leu Gln Glu Arg Lys Leu Cys Ala Val Ile Gln Leu Pro Ser
    530                 535                 540
Gln Thr Leu Pro Leu Ser Met Ser Asp Lys Ala Gly Arg Met Ile Gly
545                 550                 555                 560
Met Leu Phe Pro Glu Asn Met Val Ile Phe Lys Pro Glu Val Val Thr
            565                 570                 575
Gln Pro Ser Leu Val Arg
            580
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<210> 15
<211> 741
<212> PRT
<213> Medicago truncatula

<220>
<221> VARIANT
<222> 1381
<223> Xaa = Any Amino Acid

<221> VARIANT
<222> 177, 188, 451, 454, 458

<223> Xaa = Any Amino Acid

<400> 15

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1               5                   10                  15
Gly Pro Tyr Trp Asp Thr Leu Leu Met Asp Tyr Leu Glu Lys Ile Val
        20                  25                  30
Arg Cys Leu Gly Gly Asn Glu Ser Thr Gly Gln Lys Pro Ser Gly Ser
        35                  40                  45
Asn Val Glu Phe Ser Leu Val Thr Tyr Asn Thr His Gly Cys Tyr Ser
    50                  55                  60
Gly Ile Leu Val Gln Arg Thr Gly Trp Thr Arg Asp Pro Asp Val Phe
65                  70                  75                  80
Leu Gln Trp Leu Glu Ser Ile Pro Phe Ser Gly Gly Gly Phe Asn Asp
            85                  90                  95
Ala Ala Ile Ala Glu Gly Leu Ala Glu Ala Leu Met Met Phe Pro Pro
            100                 105                 110
Ser Gln Ser Gly Gly Leu Asn Gln Gln Asn Val Asp Thr Asn Met His
    115                 120                 125
Cys Ile Leu Val Ala Ala Ser Asn Pro Tyr Pro Leu Gln Thr Pro Val
    130                 135                 140
Tyr Val Pro Gln Leu Gln Ser Leu Glu Lys Thr Glu Ser Ile Asp Ser
145                 150                 155                 160
Asn Gln Val Asn Gln Leu Tyr Asp Ala Glu Ala Val Ala Lys Ala Phe
            165                 170                 175
Xaa Gln Phe Asn Ile Ser Leu Ser Val Val Cys Xaa Lys Gln Asn Phe
            180                 185                 190
Ser His Leu Gln Cys Gly Arg Ala Lys Gly Arg Ser Ala Asp Pro Pro
    195                 200                 205
Val Asp Pro Lys Thr Thr His Phe Leu Ile Leu Ile Ser Glu Gly Phe
    210                 215                 220
Arg Glu Ala Arg Ser Ala Leu Ser Arg Pro Gly Thr Asn Met Pro Ser
225                 230                 235                 240
Asn Gln Ser Pro Val Lys Val Asp Ala Val Ser Ala Thr Pro Val Thr
            245                 250                 255
Gly Ala Pro Pro Ser Ser Leu Pro Ser Val Asn Gly Ser Ile Pro Asn
            260                 265                 270
Arg Gln Pro Ile Pro Ala Gly Asn Val Thr Pro Ala Thr Val Lys Val
    275                 280                 285
Glu Gln Val Pro Val Thr Ser Gly Pro Ala Phe Ser His Asn Pro Ser
    290                 295                 300
Val Pro Arg Ala Thr Gly Thr Gly Leu Gly Val Pro Ser Leu Gln Thr
305                 310                 315                 320
Ser Ser Pro Ser Ser Val Ser Gln Asp Ile Met Thr Ser Asn Glu Asn
            325                 330                 335
Ala Met Asp Thr Lys Pro Ile Val Ser Met Leu Gln Pro Ile Arg Pro
            340                 345                 350
Val Asn Pro Ala Gln Ala Asn Val Asn Ile Leu Asn Asn Leu Ser Gln
    355                 360                 365
Ala Arg Gln Val Met Ala Leu Ser Gly Gly Thr Ser Met Gly Leu Gln
    370                 375                 380
Ser Met Gly Gln Thr Pro Val Ala Met His Met Ser Asn Met Ile Ser
385                 390                 395                 400
Ser Gly Thr Thr Ser Ser Gly Pro Thr Gly Gln Asn Val Phe Ser Ser
            405                 410                 415
Gly Pro Ser Val Ile Thr Ser Ser Gly Ser Leu Thr Ala Ser Ala Gln
            420                 425                 430
Val Gly Gln Asn Ser Gly Leu Ser Ser Leu Thr Ser Ala Thr Ser Asn
    435                 440                 445
Ser Ser Xaa Cys Leu Xaa Glu Phe Leu Xaa Phe Val Arg Gly Gly Lys
    450                 455                 460
Val Arg Ser Lys Phe Val Leu Arg Gly Pro Ala Lys Met Met Gln
465                 470                 475                 480
```

```
Asn Gly Val Asn Met Asp Glu Ile Gly Gly Gln Ser His Glu Thr Gln
              485                     490             495
Asn Gly Trp His Arg Ser Ser Pro Ile Trp Glu Gly Ser Leu Tyr Gly
          500                 505                 510
Arg Lys Gln Gly Glu Pro Ile Phe Ile Thr Lys Leu Glu Gly Tyr Arg
          515                 520                 525
Arg Ser Ser Ala Ser Glu Thr Leu Ala Ala Asn Trp Pro Pro Glu Met
    530                 535                 540
His Ile Val Arg Ile Ile Ser Gln Asp His Met Asn Asn Lys Lys Tyr
545                 550                 555                 560
Val Gly Glu Ala Asp Phe Leu Val Phe Arg Ala Arg Asn Thr His Gly
              565                 570                 575
Phe Leu Gly Leu Leu Gln Glu Lys Lys Leu Cys Ala Val Ile Gln Leu
          580                 585                 590
Gln Ser Gln Thr Leu Leu Leu Ser Val Ser Asp Lys Ala Cys Arg Leu
          595                 600                 605
Met Gly Val Leu Phe Pro Gly Asp Lys Leu Val Ser Lys Ser Gln Leu
    610                 615                 620
Ser Gly Gln Gln Gln Gln Gln Gln Met Gln Gln Gln Gln Met Gln Gln
625                 630                 635                 640
His Gln Gln Met Gln Ser Gln Gln Gln His Leu Pro Gln Leu Gln Gln
              645                 650                 655
Gln Met Gln Gln Gln Gln Gln Gln Gln Leu Pro Gln Leu Gln Gln
          660                 665                 670
Asn Gln Gln Leu Ser Gln Ile Gln Gln Gln Ile Pro Gln Leu Gln Gln
    675                 680                 685
Gln Gln Gln Gln Leu Pro Gln Leu Gln Gln Gln Gln Leu Ser Gln Leu
    690                 695                 700
Gln Gln Gln Gln Gln Gln Leu Pro Gln Leu Gln Gln Leu Gln His Gln
705                 710                 715                 720
Gln Leu Pro Gln Gln Gln Gln Met Gly Trp Cys Trp Asn Gly Ser Asn
              725                 730                 735
Leu Cys Ser Arg Ser
              740
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<210> 16
<211> 15075
<212> DNA
<213> O. Sartiva

<400> 16
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tgtgcttaaa atactttgaa taataaagta agtcacacaa aaaataaata ataattccaa 180
attttttaa  taagacgagt ggtcaaacag tgcaaataaa aactcaaaat ccctttatt 240
atgggacgga gggagtacct cctaaaaata cccttagttt agccgaaagg ctacactcaa 300
aactaacctg atgtatacta agaaagtaat aaatgctcac aattcttccc aactatagag 360
taccattatt attacattta ctaaacacca taaagaaca  atacaactct ttttacacc 420
aaaatttccc catattcccc tatggcccca cctgtcatcc acacaaaagc ccacctttct 480
tcttatgggc cttggggccc atataaatta gaccccagta ccccacccct tcgccgtcat 540
ctctctctaa cctcacgaaa cctaacaaga agaagaagaa gagaaattcc ggcaaggaag 600
ggagggaggg agaagtcgtt ggtgcggggg agattgattt cgcgggaggg aggggagctc 660
gagaggcggt gattcgggga gtcggcaggg tggcgccggg tgcggcggcg gcggggcgg 720
cggcggcgct ggggccgtac tggcccgtca ccgtggcgga ctacgtcgag aagatcgtgc 780
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ttcaattctg tttcacaatg cttattcaaa gagtaagaat gcaagcgcat catcgatgtg 1260
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12

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aaaagagtaa attttatcaa acaccaccta ttatggtcca agttgcacaa aaccacaggg 4920
attttggcac atgacacata accccatgta ttatggccct aaggtttaac aagaccacac 4980
cgttaaccaa ttttacatac tcctatatca aagttttaaa agttttagtt acattcatgt 5040
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13

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aacatttata tgatggataa aaaactcata aatttgtgat gtgattttat aaatgatcaa 5100
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aaataaaaat gaactcagtt tggattgtac tgtcattgta tcttatttgt ggataagaaa 5280
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14

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Val Val Phe His Thr His Gly Pro Tyr Ser Ala Phe Cys Val Gln Arg
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Ser Gly Trp Thr Lys Asp Met Asn Val Phe Leu Ser Trp Leu Ser Gly
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Ile Ser Phe Ser Gly Gly Phe Ser Glu Ala Ala Ile Ser Glu Gly
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